

## AMENDMENTS TO THE ABSTRACT

Please cancel the current abstract and insert the following therefor:

### --ABSTRACT OF THE DISCLOSURE

An electron gun includes a cathode portion which emits electrons, an anode portion which accelerates the emission electrons, a bias portion which is arranged between the cathode portion and the anode portion and controls trajectories of the emission electrons, a shielding portion which is arranged below the anode portion and shields some of the emission electrons, and a cooling portion which cools the shielding portion. The bias portion controls the trajectories of the electrons so as to form a crossover between the bias portion and the anode portion, and prevents the electrons from emitting on the anode portion.--